



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
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ATLANTA, GEORGIA 30303-8960

SEP 17 1998

4WD-RPB

Mr. John Litton, P.G.  
Director  
Div. of Hazardous & Infectious Waste Management  
Bureau of Solid & Hazardous Waste Management  
South Carolina Department of Health  
& Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201


SUBJ: Transmittal of Environmental Indicator (EI) Memo  
SCDHEC Concurrence Requested  
Albemarle Corporation  
Orangeburg, South Carolina  
EPA I.D. Number - SCD 043 384 072

Dear Mr. Litton:

The U.S. Environmental Protection Agency Region 4 has prepared the enclosed EI for SCDHEC review, modification and/or concurrence.

Should you or your staff have questions, please contact me at 404-562-8495.

Sincerely,

  
Denise Housley  
North Programs Section  
RCRA Programs Branch

Enclosure: Albemarle Corporation EI Memo

4WD-RCRA

SUBJ: Evaluation of Albemarle's status under the RCRIS  
Corrective Action Environmental Indicator Event Codes  
(CA725 and CA750)  
EPA I.D. Number: SCD 043 384 072

FROM: Denise Housley *TH 9/14/98*  
North Programs Section  
RCRA Programs Branch, WMD,  
EPA Region 4

THRU: Caron Falconer  
Chief, North Programs Section  
RCRA Programs Branch, WMD,  
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Bill Coder  
Operations Engineering Section  
Bureau of Land & Waste Management  
SCDHEC

TO: John Litton  
Director, Division of Solid  
& Infectious Waste Management  
SCDHEC

Concur: \_\_\_\_\_

# I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of Albemarle's status in relation to the following corrective action event codes defined in the Resource Conservation and Recovery Information System (RCRIS):

- 1) Human Exposures Controlled Determination (CA725),
- 2) Ground water Releases Controlled Determination (CA750).

Concurrence by the Branch Chief is required prior to entering these event codes into RCRIS. Your concurrence with the interpretations provided in the following paragraphs and the subsequent recommendations is satisfied by dating and signing above. See Memo Attachment 1 for more specific information of the RCRIS definitions for CA725 and CA750.

## II. HISTORY OF ENVIRONMENTAL INDICATOR EVALUATIONS AT THE FACILITY AND REFERENCE DOCUMENTS

This particular evaluation is the first evaluation performed by EPA for Albemarle. The evaluation, and associated interpretations and conclusions on contamination, exposures and contaminant migration at the facility, is based on information obtained from the following documents: February 9, 1993 RCRA Facility Assessment Report; January 1989 Remedial Action and Ground-Water Assessment for the Plant 9 Area; January 1981 Ground-Water Conditions at the Ethyl Property; February 1982 Ground-Water Conditions at the Ethyl Property, Phase II.

## III. FACILITY SUMMARY

Albemarle is an interim status hazardous waste boiler facility in Orangeburg, South Carolina. The facility sits on the scenic North Fork of the Edisto River. The river bounds the facility's east, a swamp to the southeast, Cannon Bridge Road and Cox Wood Preserving is to the west. On the North side of the facility is the Adick's Trailer Park. Originally constructed in 1937, the facility was known as Wannamaker Chemical Company. In 1953, Ethyl Corporation purchased the facility. In 1996, the Ethyl Corporation split off the Albemarle division as an independent corporation.

Albemarle is a organic chemical manufacturer that produces intermediates for 11 industry types and specialty chemicals.

As a result of past manufacturing and waste management activities, the facility has known ground water impacts of phenols, ammonia, chlorides, sulfates and volatile organic such as methylene chloride, toluene, and chlorobenzene. Albemarle completed ground water contamination studies in the early 1980's and has begun remediating releases voluntarily and under a State ground water Consent Order issued in 1991. The facility has removed open burn pits, sand beds, subsurface industrial sewer and unlined lagoons from service and has installed an extensive trench system to capture and treat ground water contamination. Albemarle reports that there appears to be some diversion of ground water around the collection trenches and the facility has proposed to SCDHEC, an extension of the current trench system in the area of the South Swamp and a grout curtain south east of the landfill to prevent contamination intercepting the River and the South Swamp.

The North Fork of the Edisto River and South Swamp area are located east and south of the facility respectively, are in the

direction of ground water flow and are in threat of direct impact from ground water contamination. Albemarle has a monitoring program in place and does frequent analysis of the ground water; River surface water, sediments and fauna. Currently, Albemarle reports no identified impact. Proposals for further address of the ground water have been made to the State under the Consent Order. Albemarle has not confirmed cleanup to RCRA Action Levels for specific contamination or clearly identified the extent or concentration of contamination in RCRA terms.

#### IV. CONCLUSION FOR CA725:

As more fully explained in Memo Attachment 2, because there is not enough relevant information available to make a determination as to whether human exposures are controlled, it is recommended that CA725 IN be entered into RCRIS.

#### V. CONCLUSION FOR CA750:

Based on data contained in the documents referenced in Section II and summarized in the ground water portion of Attachment 2, releases from SWMUs and/or AOCs have contaminated ground water at concentrations above relevant action levels. In addition, some of these areas of ground water contamination do not have enough monitoring data for vigorous interpretations to be made as to the effectiveness of the active or passive ground water system at controlling the physical migration of contaminants.

#### VI. SUMMARY OF FOLLOW-UP ACTIONS

In conclusion, EPA Region 4 is evaluating the need for a Corrective Action Order to initiate the RCRA Facility Investigation prior to the issuance of Albemarle's Federal HSWA permit for hazardous waste combustion in the facility's boiler unit. Past remediation effort effectiveness have not been evaluated for RCRA standards, which were completed under the State ground water Consent Order.

MEMO ATTACHMENT 1

A. HUMAN EXPOSURES CONTROLLED  
DETERMINATION (CA725)

There are five (5) national status codes under CA725. These status codes are:

- 1) YE Yes, applicable as of this date [i.e., human exposures are controlled as of this date].
- 2) NA Previous determination no longer applicable as of this date.
- 3) NC No control measures necessary.
- 4) NO Facility does not meet definition [i.e., human exposures are not controlled as of this date].
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

Note that CA725 is designed to measure human exposures over the entire facility (i.e., the code does not track SWMU specific actions or success). Every area at the facility must meet the definition before a YE or NC status code can be entered for CA725. The NO status code should be entered if there are current unacceptable risks to humans due to releases of hazardous wastes or hazardous constituents from any SWMU(s) or AOC(s). The IN status code is designed to cover those cases where insufficient information is available to make an informed decision on whether or not human exposures are controlled. If an evaluation determines that there are both unacceptable and uncontrolled current risks to humans at the facility (NO) along with insufficient information on contamination or exposures at the facility (IN), then the priority for the EI recommendation is the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NC status codes. In other words, YE, NC, NO and IN cover all

of the scenarios possible in an evaluation or reevaluation of a facility for CA725. Therefore, it is Region 4's opinion that only YE, NC, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

B. GROUND WATER RELEASES CONTROLLED  
DETERMINATION (CA750)

There are five (5) status codes listed under CA750:

- 1) YE Yes, applicable as of this date [i.e., ground water releases are controlled as of this date].
- 2) NA Previous determination no longer applicable as of this date.
- 3) NR No releases to ground water.
- 4) NO Facility does not meet definition [i.e., ground water releases are not controlled as of this date].
- 5) IN More information needed.

The first three (3) status codes listed above were defined in January 1995 Data Element Dictionary for RCRIS. The last two (2) status codes were defined in June 1997 Data Element Dictionary.

The status codes for CA750 are designed to measure the adequacy of actively (e.g., pump and treat) or passively (e.g., natural attenuation) controlling the physical movement of ground water contaminated with hazardous constituents above relevant action levels. The designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.) is the point where the success or failure of controlling the migration of hazardous constituents is measured for active control systems. Every contaminated area at the facility must be evaluated and found to have the migration of contaminated ground water controlled before a "YE" status code can be entered.

If contaminated ground water is not controlled in any area(s) of the facility, the NO status code should be entered.

If there is not enough information at certain areas to make an informed decision as to whether ground water releases are controlled, then the IN status code should be entered. If an evaluation determines that there are both uncontrolled ground water releases for certain units/areas (NO) and insufficient information at certain units/areas of ground water contamination (IN), then the priority for the EI recommendation should be the NO status code.

In Region 4's opinion, the previous relevance of NA as a meaningful status code is eliminated by the June 1997 Data Element Dictionary's inclusion of NO and IN to the existing YE and NR status codes. In other words, YE, NR, NO and IN cover all of the scenarios possible in an evaluation or reevaluation of a facility for CA750. Therefore, it is Region 4's opinion that only YE, NR, NO and IN should be utilized to categorize a facility for CA725. No facility in Region 4 should carry a NA status code.

## MEMO ATTACHMENT 2

### MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

#### GROUND WATER

There are areas of the facility where information on plausible human exposures is insufficient or lacking. These areas of the facility correspond to locations where ground water contamination is known or suspected to exist. Albemarle has not yet received a RCRA Hazardous Waste Management Permit. The facility has only a medium priority on-site captive hazardous waste boiler. The National Combustion Strategy mandates commercial sites have priority permitting currently. Thus, Albemarle has not yet initiated or completed a RCRA Facility Investigation (RFI) to define the type and extent of releases at the site. Ground water evaluation reports, from 1981 and 1982, do indicate ground water plumes at the southeast property boundaries and in the South Swamp area. These early studies identify plumes of total dissolved solids, chlorides, sulfate, aluminum, and total purgeable organics for the shallow aquifer. No data is available regarding any Appendix VIII screening of the site. There is no later ground water monitoring reports nor later iso-maps for contamination movement or concentration. The plume character currently is not well defined nor is the extent of plumes clearly mapped.

Because of the uncertainty regarding whether plausible human exposures to ground water contamination exist at the facility, an opinion on plausible human exposures to ground water contamination is not possible at this time.

#### SURFACE WATER

There are areas of the facility where information on plausible human exposures is insufficient or lacking. These areas of the facility correspond to locations where surface water contamination is known or suspected to exist. The North Fork of the Edisto River and the South Swamp are suspected have intercepted releases from Albemarle. Under the facility's SCDHEC ground water Consent Order, at the time of this evaluation, Albemarle had submitted additional proposals to mitigate contaminated ground water migration into the River and the South Swamp. Currently, there is no reports regarding these releases address RCRA concerns, standards and limits. All mitigation is to State Ground Water Division standards.



Because of the uncertainty regarding whether plausible human exposures to surface water contamination exist at the entire facility, an opinion on plausible human exposures to surface water contamination is not possible at this time.

#### SOIL -

There are areas of the facility where information on plausible human exposures is insufficient or lacking. These areas of the facility correspond to locations where soil contamination is known or suspected to exist. Albemarle has remediated by removal and paving in many suspected areas of release, but has used only the TCLP analysis for confirmation of need for removal. The TCLP analysis is inadequate for determining the need for corrective action or defining concentrations in the soil requiring action.

Because of the uncertainty regarding whether plausible human exposures to soil contamination exist at the facility, an opinion on plausible human exposures to soil contamination is not possible at this time.

#### AIR

There are areas of the facility where information on plausible human exposures is insufficient or lacking. These areas of the facility correspond to locations where releases to the air are unknown.

Because of the uncertainty regarding whether plausible human exposures to air contamination exist at the facility, an opinion on plausible human exposures to air contamination is not possible at this time.